CLAIMS

What is claimed is:

1. A fabrication method for light-emitting chips to produce a plurality of light-emitting chips with fast heat-dissipating characters after cutting, the method comprising the steps of:

providing an epitaxial chip and a heat-dissipating substrate, the epitaxial chip having a surface which is attached with a plurality of metal blocks and formed with a plurality of grooves, the heat-dissipating substrate being attached with a plurality of metal electrodes;

bonding the metal blocks of the epitaxial chips and the metal electrodes of the heat-dissipating electrodes after aligning them; and

cutting the bonded epitaxial chip and the heat-dissipating substrate to form a plurality of independent light-emitting chips.

2. The fabrication method of claim 1, wherein the metal blocks attached on the epitaxial chip is made of a material selected from the group consisting of gold, silver, tin, and their alloys that have highly electric and thermal conductive properties.

3. The fabrication method of claim 1, wherein the metal blocks on the epitaxial chip is attached by a method selected from electroplating, evaporation and sputtering.

4. The fabrication method of claim 1, wherein the bonding between the metal electrodes on the heat-dissipating substrate and the metal blocks on the epitaxial chip is performed via a method selected from electro-soldering, welding, and supersonic bonding.

5. The fabrication method of claim 1, wherein the material of the heat-dissipating substrate is selected from the group consisting of ceramics, aluminum oxides, and aluminum nitrides.

6. The fabrication method of claim 1, wherein the grooves of the epitaxial chip are formed by laser machining or a lithography process.

7. A fabrication method for light-emitting chips with a color mixture layer for making a light-emitting chip that emits light with a mixture of at least two different wavelengths, the method comprising the steps of:

providing an epitaxial chip and a heat-dissipating substrate, the epitaxial chip having a surface which is attached with a plurality of metal blocks, formed with a plurality of grooves and coated with a color mixture layer, the heat-dissipating substrate being attached with a plurality of metal electrodes;

bonding the metal blocks of the epitaxial chips and the metal electrodes of the heat-dissipating electrodes after aligning them; and

cutting the bonded epitaxial chip and the heat-dissipating substrate to form a plurality of independent light-emitting chips.

8. The fabrication method of claim 7, wherein the plurality of metal blocks attached on the epitaxial chip is made of a material selected from the group consisting of gold, silver, tin, and their alloys that have highly electric and thermal conductive properties.

9. The fabrication method of claim 7, wherein the plurality of metal blocks on the epitaxial chip is attached by a method selected from electroplating, evaporation and sputtering.

10. The fabrication method of claim 7, wherein the bonding between the metal electrodes on the heat-dissipating substrate and the metal blocks on the epitaxial chip is performed via a method selected from electro-soldering, welding, and supersonic bonding.

11. The fabrication method of claim 7, wherein the material of the heat-dissipating substrate is selected from the group consisting of ceramics, aluminum oxides, and aluminum nitrides.

12. The fabrication method of claim 7, wherein the color mixture layer is formed from mixed scattering particles, fluorescent particles, and diffracting particles.

13. The fabrication method of claim 7, wherein the grooves of the epitaxial chip are formed by laser machining or a lithography process.

14. A fabrication method for light-emitting chips with a fluorescent layer for making a light-emitting chip that emits light with a mixture of at least two different wavelengths, the method comprising the steps of:

providing an epitaxial chip and a heat-dissipating substrate, the epitaxial chip having a surface which is attached with a plurality of metal blocks, formed with a plurality of grooves and coated with a fluorescent layer, the heat-dissipating substrate being attached with a plurality of metal electrodes;

bonding the metal blocks of the epitaxial chips and the metal electrodes of the heat-dissipating electrodes after aligning them; and

cutting the bonded epitaxial chip and the heat-dissipating substrate to form a plurality of independent light-emitting chips.

15. The fabrication method of claim 14, wherein the plurality of metal blocks attached on the epitaxial chip is made of a material selected from the group consisting of gold, silver, tin, and their alloys that have highly electric and thermal conductive properties.

16. The fabrication method of claim 14, wherein the plurality of metal blocks on the epitaxial chip is attached by a method selected from electroplating, evaporation and sputtering.

17. The fabrication method of claim 14, wherein the bonding between the metal electrodes on the heat-dissipating substrate and the metal blocks on the epitaxial chip is performed via a method selected from electro-soldering, welding, and supersonic bonding.

18. The fabrication method of claim 14, wherein the material of the heat-dissipating substrate is selected from the group consisting of ceramics, aluminum oxides, and aluminum nitrides.

19. The fabrication method of claim 14, wherein the fluorescent layer contains yttrium aluminum garnet (YAG) powders.

20. The fabrication method of claim 14, wherein the grooves of the epitaxial chip are formed by laser machining or a lithography process.